

In the Claims

The following Listing of Claims replaces all prior versions in the application:

LISTING OF CLAIMS

1-2. Cancelled

3. (Currently amended) A power supply system comprising:

a DC power supply apparatus;

a load device which is connected to said DC power supply apparatus;

a charging path which is connected to said DC power supply apparatus in parallel with said load device, said charging path including

a plurality of series-connected lithium ion batteries ,

a charging current limiting circuit, that is connected in series with said plurality of said series-connected lithium ion batteries and that supplies a charging current of an arbitrary value independent of load fluctuations in said charging path , and

a switch that is installed in said charging path in series with said plurality of said series-connected lithium ion batteries and is provided with such function that disconnects said plurality of said series-connected lithium ion batteries from both of said DC power supply apparatus and said load device when ~~the~~ cell voltage of any of said plurality of said series-connected lithium ion batteries shows overcharging or over-discharging ~~of any of said lithium ion batteries~~, or connects said plurality of said series-connected lithium ion batteries to both of said DC power supply apparatus via said charging current limiting circuit and said load device in a normal state so that said charging current limiting circuit supplies said charging current to said plurality of said series-connected lithium ion batteries via said charging current limiting circuit while said DC power supply apparatus supplies a current to said load device;

a plurality of voltage regulation circuits each of which ~~that~~ is connected in parallel with ~~each~~ respective lithium ion battery of said plurality of said series-connected lithium ion batteries, detects a full-charge voltage in each lithium ion battery and bypasses said charging current when said full-charge voltage exceeds a full-charge reference voltage set in each of said plurality of said voltage regulation circuits; and

a control circuit that monitors the voltage value and current value of said charging path,

and is connected to said charging current limiting circuit, said plurality of said voltage regulation circuits and said switch to sets a reference voltage used for setting the charging current of said arbitrary value in said charging current limiting circuit, ~~and performs to set a uniform full-charge voltage as said full-charge reference voltage setting in all of said plurality of said voltage regulation circuits, and switches to activate said switch to disconnect when said voltage of said charging path exceeds a specified voltage value during charging~~ cell voltage of any of said plurality of said series-connected lithium ion batteries shows overcharging or over-discharging.

4. (New) The power supply system according to claim 3, wherein each of said voltage regulation circuits comprises:

A differential amplifier supplied with said full-charge reference voltage from said control circuit and a charge voltage from said respective lithium ion batteries; and

A charging current bypass circuit connected in parallel with said respective lithium ion battery and activated by an output of said differential amplifier so as to bypass said charging current of said respective lithium ion battery when said full-charge voltage exceeds a full-charge reference voltage.